

This comment is in reference to an FCC action to consider deployment of power line communication operating at radio frequencies. Technical discussion of these systems indicates they may operate at frequencies within the 2 to 80 MHz frequency spectrum to provide broadband communications services. While the virtues of such a capability are clear, it's impact on radio communication services licensed or authorized to use this same spectrum is clearly negative. Users of this spectrum often transmit and receive weak signals, whether these be part 15 devices or amateur communications for example. The approach for power line communication is technically flawed for these reasons:

(1) power lines are pervasive and by definition close to, and within homes and businesses.

(2) power lines offer no inherent shielding. this similar means that power lines make an excellent antenna for communication use in the 2 to 80 MHz region. For example, I have used a 200 foot long wire to make successful comment to licensed amateurs in Europe using only 400 milliwatts of transmit power. Unless these services are constrained to less than 1 milliwatt of transmitted power they will degrade the availability of the radio spectrum to its users.

(3) in addition to the transmitting effect of power lines used in power line communication, these same power lines are also receive antennas. as a result, they provide no protection from interference from licensed users of the spectrum. For example, amateur radio operators located nearby power line communication users when transmitting levels up to the maximum permitted level will likely prevent reliable operation of these services. Of course consumers will not understand that the service they have paid for is technically flawed in this manner.

(4) Analysis of interference between radio spectrum users and power line communication is complex, particularly when complex wideband waveforms will be employed in power line communication. It should be noted that digital signals typically produce emissions at odd harmonics of the modulation frequencies. The impact in limiting the availability of the spectrum to critical users in low signal conditions should be of concern. As many law enforcement and rescue services use VHF and UHF frequencies and often operate with little margin in available signal strengths, their needs should also be considered.

I believe that to use the radio spectrum responsibly that all public use of these frequencies for wideband communication should be done within shielded transmission lines such as coaxial cable of sufficient quality. It is clear from my experience with radiation from the cable TV service they can do a sufficient job to avoid radiation, but when their equipment or installation is of poor quality they do disrupt small signal communications services. Of course trying to perform a similar task with a wire means it is impossible to provide the necessary shielding. Even the lowest class recently licensed amateur knows that an unshielded piece of wire is an antenna. Prudent analysis and evaluation will show that this proposal is not compatible with the amateur radio service nor to other users of the spectrum, some of which require only convenience but others that provide communication critical to human life and well being.

This commenter is a licensed amateur and an electrical engineer employed in the design of radio frequency equipment.

Thank you for receiving this comment, and I appreciate your effort in working to make decisions that will not impair the public interest.